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BIOLOGICAL EVALUATION
Tent Caterpillar Infestation

Sabino Canyon and Upper Bear Canyon
Santa Catalina District
Coronado National Forest
Arizona

1970

An evaluation was made of the tent caterpillar population at Sabino Canyon and Upper Bear Canyon by Pest Control personnel Charles Germain and Paul Buffam on October 13, 1970. Results indicate that defoliation in 1971 will be severe on Fremont cottonwood and Goodding willow in some areas of Sabino Canyon and on southwestern chokecherry and willow at Upper Bear Canyon. Little, if any, tree killing is expected in 1971, but some branch mortality will probably occur. Suppression by ground application of Thuricide 90 TS in 1971 is recommended at selected locations in Sabino Canyon and Upper Bear Canyon to protect the aesthetics of these high-use recreation areas.

General Information

Insect - A tent caterpillar, Malacosoma incurvum incurvum (Henry Edwards)

Host - Fremont cottonwood, Populus fremontii S. Wats., Goodding willow, Salix gooddingi Ball, and southwestern chokecherry, Prunus virens (Woot. & Standl.) Shreve

Type of Damage - Moderate to severe defoliation occurred in 1970. Severe defoliation is anticipated at several areas in 1971.

Extent of Infestation - In Sabino Canyon, the infestation occurs where susceptible host trees are present--mainly between the dam and the 9th or last bridge. The infestation in and adjacent to Bear Canyon Campground is also confined to the locations of susceptible host trees--mainly within a strip of 10-20 feet on either side of Highway FH 33.

Biological Information

Egg Mass Survey

Methods - Trees were sampled at various intervals throughout the infested area to determine the extent and severity of the problem. Two 30-inch branch samples were cut from the opposite sides of the upper crown of randomly selected dominant and codominant host trees. All new egg masses on the branch samples were counted and recorded. At Sabino Canyon, 10 willow and 14 cottonwoods were sampled. At Upper Bear Canyon, 2 willows and 8 chokecherry trees were sampled.

Results

Sabino Canyon -

Area	No. trees sampled	Ave. no. egg masses/2 30-inch branches
Lake near dam	6	0.2
North of lake	4	3.0
Across from caretaker's hq.	4	7.0
2nd bridge	4	1.3
4th bridge	2	1.0
5th bridge	2	1.0
9th bridge	2	0.0
Total	24	Ave. 2.08

Moderate to heavy defoliation is expected in 1971 for host trees between the lake and the 5th bridge. The heaviest affects will be in the area across from the caretaker's headquarters. Only 1 or 2 host trees per acre are present in the canyon between the 5th and 9th bridges.

Upper Bear Canyon - The average number of egg masses per two 30-inch branches is 3.4 for chokecherry and 1.5 for willow. Moderate to severe defoliation is expected on both species in 1971.

Discussion

Both Sabino Canyon and Upper Bear Canyon are high-use recreation areas. Severe defoliation in 1971 will leave the trees of the affected species at some locations within both areas devoid of leaves until they refoliate in mid or late summer. Little, if any, tree mortality should occur, but some branch killing will probably result.

The areas in Sabino Canyon from the dam to just above the picnic area across from the caretaker's headquarters are very heavily used in the spring and early summer--the period when the affects of defoliation will be most evident. These trees can be adequately reached with spray from a combination of backpack and trailer-mounted mist blower.

The area affected in Upper Bear Canyon is within or adjacent to two heavily-used campgrounds. The host trees are primarily confined to a strip about ½ mile long and 10-20 feet wide along both sides of the highway. Here we also found damage by cicadas to all hardwood species and defoliation by fall webworm, Hyphantria cunea (Drury), to Arizona walnut, Juglans major (Torr.) Heller. A few branch ends had died as a result of egg deposition by female cicada adults. However, this was not significant. Some Arizona walnut trees contained about 20-30 fall webworm tents each. These tents are, even now, quite unsightly. Defoliation by this insect was quite severe in 1970.

Recommendations

Sabino Canyon - To prevent defoliation and subsequent branch killing due to tent caterpillar feeding, we recommend that host trees between the dam and the 9th bridge be sprayed in the spring of 1971 with the biological insecticide Thuricide, a commercial preparation of the bacterium Bacillus thuringiensis Berliner. Application can be made by trailer-mounted mist blower where trees are accessible by road, or by backpack mist blower where not accessible by road. This type of ground method should help minimize the amount of Thuricide reaching the water, plus the amount that might be applied to non-host trees.

Upper Bear Canyon - We recommend that chokecherry and willow trees within and adjacent to the Bear Canyon Campground be sprayed with Thuricide in the spring of 1971 to prevent defoliation and subsequent branch killing caused by tent caterpillar feeding. We also recommend

that Arizona walnut within the same area be sprayed with Thuricide in the summer of 1971. This will minimize the damage caused by fall webworm defoliation and tent formation. Both applications can be done by ground methods.

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